GEOGRAPHICAL RECORD.

AFRICA.

POSTAL SERVICE IN THE SAHARA.—Since January 1, 1908, In-Salah, the capital of the French Territory of the Oasis, has been connected with the north of Algeria by two postal lines, one extending through Biskra, Tuggurt, and Wargla, and the other through Laghuat, Ghardaïa and El Golea. A fast camel service is now being established to carry the mail monthly from In-Salah to Timiauine and Gao on the Niger. The service, which is being developed by the Government, will be extended from Gao up the Niger to Timbuktu, down the river to Niamey and across the southern part of the desert to Agadès, thence south to Zinder in the neighbourhood of the Sudan, northwest of Lake Chad. The new trans-Saharan postal service will be in full operation this spring. It is expected that the extension of the telegraph service across the desert will not long be delayed. (*Revue Française,* March, 1908.)

SURVEYS IN THE SAHARA.—This sketch map of the route of the Arnaud-Cortier Mission across the Sahara is reproduced from the *Revue Française* (Feb., 1908). Leaving Algiers by train, the party reached the rail head at Colomb-Béchar. With a small caravan they then proceeded in a southeasterly direction to In Salah. The larger stretch of desert was still before them, and they struck out across the former forbidden land of the mountainous Hoggar, the stronghold of the once formidable Tuaregs, and then turned southwest to the Sudan. Leaving In Salah on March 18, 1907, they arrived at Gao on the Niger on May 22. That is to say, in less than two and a half months they crossed the greater part of the Sahara without firing a hostile shot or meeting with any opposition from the natives. They were well received by the desert tribes and their chiefs.

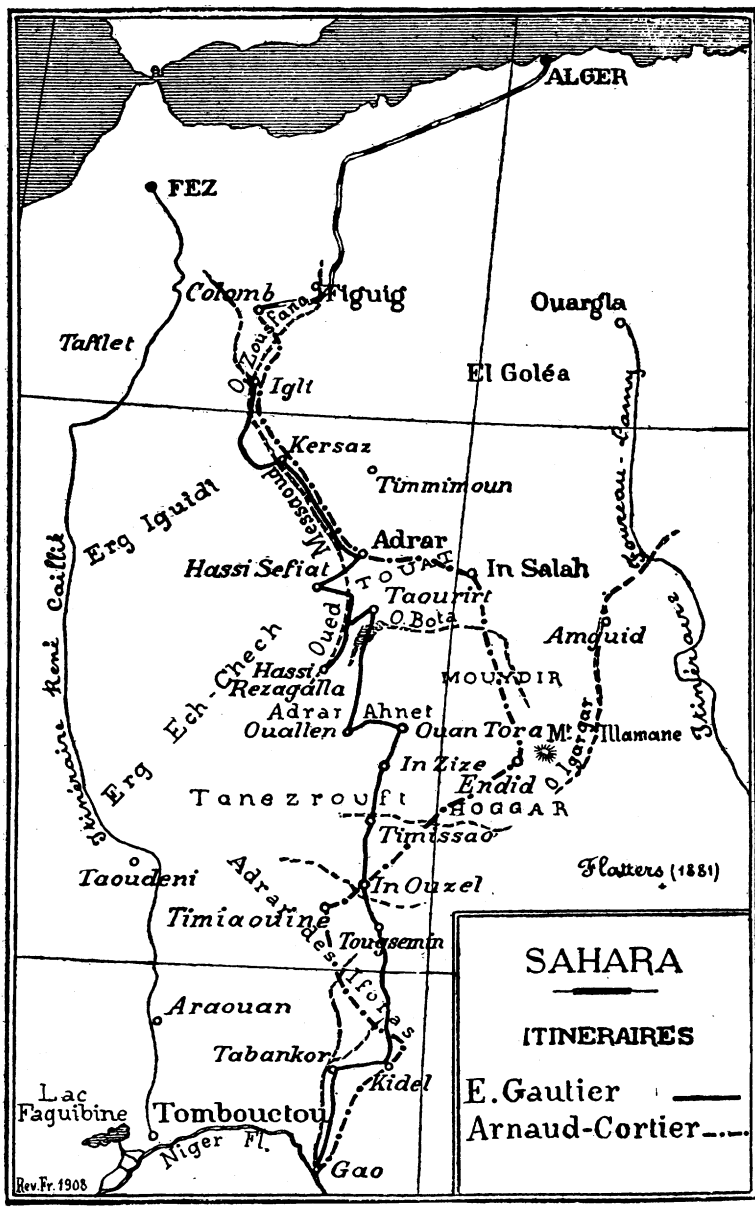
The largest geographical significance of this notable journey is that the Arnaud-Cortier Mission was able to complete the first line of triangulation across the desert. The line had been carried forward by Mr. Villatte from Algeria to Timiaouine and from that point the Mission continued it to Gao, where it was joined to the line between Gao and Timbuktu.

Algiers is thus joined with Timbuktu by a line of precise surveys, determined with instruments and observations of a high degree of accuracy. This triangulation net will form the base for the survey of other itineraries and will greatly facilitate the accurate mapping of a wide area on both sides of it.

The *Bulletin* of the Comité de l'Afrique Française (No. 12, 1907) mentions the fact that the triangulation established in the Algerian Sahara in 1904 by Mr. Villatte's survey party made it possible for Lieut. Nieger to produce the admirable map of the north Sahara on a scale of 1:1,000,000. Though the French have made many journeys in the more southern regions of the desert since they organized the fast camel service, they have travelled too rapidly to make good maps. It will now be possible, however, to give large cartographic value to future journeys by basing surveys on the triangulation accomplished last year.

Lieutenants Vallier and Langlumé and Capt. Pasquier of the Mission were able to make a nearly complete survey of the region of Adrar des Iforas based upon the astronomical points fixed on the main itinerary; also to study this region

in considerable detail in its geology and commerce, and much was learned of the ways of life of the Tuareg Iforas.



Later in the year Félix Dubois crossed the Sahara in four months from In Salah to the Niger, travelling with a native guide, but without escort. Such journeys

as these have been rendered possible by the French organization, within the past six years, of fast camel service. Previous to this innovation, the French were unable to overtake the predatory and hostile bands of nomads, punish them for the outrages they committed, and reduce them to order. The subjugation of these desert tribes is now practically complete, the crossing of the Sahara is comparatively easy, and the desert is no longer the terror of travellers. The heroic period of Saharan exploration has been definitely closed.

CONDITION OF THE UPPER NILE.—Sir William Garstin, who has returned to Cairo from the Upper Nile, reports that the water level in the Bahr-el-Seraf and the Bahr-el-Jebel and in the great swamp through which they pass is exceptionally low at present and everything seems to point to a very scanty summer supply in Egypt this year. If it were not for the Assuan dam, the cotton crop would be in danger, but the reservoir removes all cause for alarm. The *sudd* in the Bahr-el-Ghazal has recently been giving trouble. After remaining open for years, this river has been rather badly blocked for the past two seasons and, at present, it is closed for about fifteen miles above its outlet at Lake No. When the Sudan steamers were transporting supplies to the equatorial province early last winter they narrowly escaped imprisonment and extricated themselves with much difficulty. (London *Times,* weekly edition, Feb. 28, 1908.)

THE NIAM NIAM.—Messrs. E. Giard and V. Brière have sent to the Society from Paris a separate of 32 pp., from the *Revue Internationale de Sociologie,* entitled "Les Niam Niam." The monograph is a French translation from the original Italian written by Enrico Craffen and Dr. Edoardo Colombo. It is a study of the Niam Niam (great meat-eaters) inhabiting the northeastern part of the Congo Free State and first described by Schweinfurth. It is a desirable contribution to our scanty literature on the Niam Niam.

AMERICA.

ALASKA SURVEYS IN 1908.—Thirteen U. S. Geological Survey parties will continue the surveys and investigations in Alaska during 1908. Six parties will study the geology and mineral resources in certain districts, two will combine this class of work with topographic surveys, three will be engaged in topographic mapping, and two in the study of the water resources in some of the important mining districts. Here is a brief outline of the various features of the work:

Southeastern Alaska: Detailed study by C. W. Wright of the mining districts of Prince of Wales Island, including the Kasaan Peninsula and Copper Mountain regions; detailed topographic mapping of Kasaan Peninsula and mapping of the Copper Mountain mining district, on Prince of Wales Island, by R. H. Sargent;

Copper River Region: As capital is being invested in railroad construction and mining in this region, the surveys will be pushed this season. The northern copper belt along the inland face of the Wrangell Mountains from White River to the Nabesna will be studied in detail by F. H. Moffit, Adolph Knopf, and S. R. Capps, and topographic surveys will be made in the upper White River region. D. C. Witherspoon and R. M. La Follet will also work in this region and it is expected that the distribution of copper ores will be outlined through the entire belt;

Prince William Sound: The geological investigations made three years ago will be supplemented by the work of U. S. Grant, who will visit all the more important prospects;

Southwestern Alaska: W. W. Atwood will study the coal of Herendeen Bay and Unga Island and also the Matanuska coal field. He will be assisted by H. M. Eakin, and it is hoped that the surveys will enable him to make a fairly definite statement concerning the coal resources of southwestern Alaska;

Yukon Basin: J. W. Bagley will survey an area along the Tanana above Fairbanks and extend reconnaissance surveys south of the Tanana and west of the Delta River; L. M. Prindle and F. J. Katz will complete the geological survey of the Fairbanks district, studying the placer deposits and associated bed rock and the genesis and distribution of the gold; C. C. Covert and C. E. Ellsworth will continue the study of water resources of the placer districts in the Yukon-Tanana belt; Mr. A. C. Maddren will go to the Innoko River, a tributary of the lower Yukon, to obtain more definite information of this district where discoveries of placer gold were reported last year;

Seward Peninsula: The geological structure of this region is very complex and some time must elapse before a final statement can be made regarding the occurrence of the gold in bed rock. P. S. Smith and E. M. Kindle will head parties which will continue investigations here. The study of the water resources of the peninsula will be continued by F. F. Henshaw;

Alfred H. Brooks will continue the supervision of the Alaska work. He will be engaged in Washington until about July 1 and will then visit some of the survey parties in Southeastern Alaska, the Fairbanks district and the Seward Peninsula.—(*Press Bulletin* of the U. S. Geological Survey, No. 322.)

THE WINDS OF THE LAKE REGION.—The general climatic effects of the Great Lakes have yet to receive the attention which this subject merits, but from time to time studies of some special feature of the Lakes' influence on climate appear, and thus more and more information is gradually accumulating. In the *Monthly Weather Review* for November, 1907, Professor A. J. Henry, of the United States Weather Bureau, discusses "The Winds of the Lake Region" in a contribution to American climatology, which, though short, is of considerable interest. For the purposes of this study both the regular station records of the Weather Bureau and the records of co-operative observers have been used. It appears that in the cold season (November-March) the winds of the Great Lakes are controlled chiefly by the meteorological conditions which prevail in the continental interior, the prevailing direction being northwest. In spring and early summer the winds come alternately under the influence of the steep temperature and pressure gradients of the lingering winter cold, and the increasing temperature of the advancing season. Hence, the spring winds are more variable than those of winter, showing little definite system. There appears to be a slight monsoon influence on Lake Michigan, shown in onshore winds from April to September. In summer, the winds of the Lake region are generally onshore, forming about 20% of the total winds observed, but these prevail only when pressure gradients are weak. Professor H. A. Hazen, some years ago, called attention to the lake breezes which had been noted at Chicago, and now Professor Henry notes the occurrence of such lake winds, mostly in the forenoon hours of quiet summer days, and confined mostly to the west shore of Lake Michigan.

The prevailing winds of summer are southwest to south, except on Lake Superior, where local causes seem to be at work. The southerly winds of the lower Mississippi Valley seem to divide, in late spring, into two branches, one forming the summer southeast winds of the Missouri Valley and Plains, and the other the southwest winds of the Ohio Valley and lower Lakes. In autumn, the Lakes have their minimum effect on wind direction. The general direction is southwest over the lower Lakes and northwest and west over Lake Superior.

The lower Lakes provide an easy path for the winds, forming, as they do, a great shallow depression. It seems probable that all winds between west and north follow this depression unless strong pressure and temperature gradients oblige them to cross the Lakes obliquely. Ten miles is the average hourly velocity of the wind in the Lake Region for the mean of the year. The winter winds are steadier, *i. e.,* blow with a more uniform velocity day and night, than the winds of spring and summer, but the recorded wind velocities vary a good deal because of the varying altitudes of the anemometers above the ground. The storms which produce high winds in the Lake region belong to three groups, viz., (1) storms moving to the eastward north of Lake Superior; (2) storms approaching the Lake region from south or southwest, or whose centres approach from the west, but south of Lake Superior; (3) storms occasionally moving northward along the Atlantic Coast; becoming better developed as they reach higher latitudes and often curving inland over the Eastern Middle Atlantic States. Storms of the first group are most numerous, by far, and least dangerous. Storms of the second group are generally attended by dangerous winds over some part of the Lake Region. Storms of the third group rarely affect the upper Lakes, but do cause dangerous gales over Lakes Erie and Ontario. R. DEC. W.

PRECIPITATION IN THE LAKE REGION.—The *Meteorological Chart of the Great Lakes,* No. 1, 1907, by Alfred J. Henry and Norman B. Conger, contains a chart showing the average annual precipitation in the Lake region for the period 1871-1906. This chart is based on rainfall measurements at 21 stations with records covering the whole period, but in all 107 stations were used, all but 7 of which had more than ten years of observations. The records of ten years and over were "generally reduced" to the fundamental period. The total amount of rain and melted snow is about 31 inches. The increase in precipitation due to the presence of the Lakes is believed to be not more than two or three inches annually. At a single station in the Lake region the difference between the year of greatest rainfall and the year of least rainfall may be as much as 30 inches. R. DEC. W.

BIBLIOGRAPHY OF AMERICAN HISTORICAL SOCIETIES.—Vol. 2, of the annual *Report* for 1905, of the American Historical Association, just issued from the Government Printing Office, is the second edition of the Bibliography. It contains 1,374 pp., devoted to the literary output of American historical societies, including some of the geographical societies. The principal contents of each volume are noted by title, and a subject and author index makes it easy to find each reference. A full biographical index is also included. The list of articles appearing in the publications of the American Geographical Society (1852-1892; some volumes are omitted) appears on pp. 74-87. The usefulness of the work can hardly fail to be commensurate with the great labour bestowed upon it.

SIXTH REPORT OF THE MARYLAND GEOLOGICAL SURVEY.—An elaborate report on the physical features of Maryland fills 251 pp., or nearly one half of the volume. It was written by Prof. Wm. Bullock Clark, State Geologist, and Edward B. Mathews, with the collaboration of others, and is a careful summary of the physiography, geology, mineral resources, soils, climate, hydrography, terrestrial magnetism, and forestry of the State. It should prove of great interest and value to the citizens of Maryland. In describing the three regions into which the State is divided (the Coastal Plain, the Piedmont Plateau, and the Appalachian Regions) large attention is given to the influence of topography upon the inhabitants and to phases of economic physiography in each division. The need has long been felt of such a comprehensive and reliable treatment as this of the various States of the Union, and Maryland is to be congratulated that it is one of the first to meet the demand for authoritative information. A new geological and agricultural soil map of the State accompanies the volume.

SUMMER MEETING OF THE AMERICAN ASSOCIATION.—The American Association for the Advancement of Science will hold a summer meeting at Dartmouth College, Hanover, N. H., during the week beginning June 29. Prof. C. H. Hitchcock, a member of the Committee of Arrangements, will act in the interest of Section E, Geology and Geography.

SOCIÉTÉ DE GÉOGRAPHIE DE QUÉBEC.—This Society, having been reorganised, has resumed the publication of its *Bulletin,* necessarily suspended about ten years ago. It will be published quarterly, and the January number makes a very favourable impression. The contents include a paper on the explorations, geography, and resources of the Abitibi and Chibougamo regions; another, on the sovereign rights claimed by Canada over Hudson Bay, a description of the little-known region in northern Quebec to be opened by the construction of the new trans-continental railroad; a short account of the Nascapi Indians of Labrador, and four pages of geographical notes and news, all relating to Canada. It is gratifying to note the Society's renewed activity.

CLIMATE OF THE ISTHMUS OF PANAMA.—Few, if any, writers on Panama have made so thorough a study of the climatology of the Isthmus as Brig.-Gen. Henry L. Abbot, U. S. A. (retired), who, as a member of several engineering boards, has been actively connected with the canal surveys at various times for years past. In a discussion of the *Present Status of the Panama Project* (*Ann. Amer. Acad. Pol. and Soc. Sci.,* Jan., 1908), Gen. Abbot summarizes the conditions of climate and health briefly and clearly. The temperature varies very little from month to month throughout the year, the mean annual being about 80°. In the dry months the daily range averages from 73° at 6 A. M. to 89° at 1 P. M. In the rainy season the means are 75° and 86° at the corresponding hours. On the Pacific Coast the extremes come a little later and the range is some 3° less. Relative humidity varies from 80% in the dry to 87% in the rainy months. The uniformly high temperature and excessive relative humidity produce lassitude in persons of northern birth, and an occasional change of climate is necessary. On the other hand, however, Gen. Abbot points out that the absence of frost will greatly assist the making of concrete for the canal, and the practical operation of the locks during the passage of vessels.

The winds average from 5 to 8 miles an hour. "Northers" at Colon occur at rare intervals, but are dangerous to shipping at the piers. Vessels passing through the canal will have little difficulty with the winds.

The dry season extends from the middle of January to the middle of April, when the equatorial rainy belt is south. For the rest of the year the rainy season prevails. Near the Atlantic Coast the mean annual rainfall is about 140 inches, while near the Pacific it is about 60 inches. The heavy rains of the rainy season reduce excavation output not far from 25%, chiefly because of the difficulty of shifting tracks and transporting material to the dumps.

The remarkable work of Col. Gorgas has brought it about that "residence in the Zone is now hardly more dangerous than in many localities in the United States." In September, 1907, the death rate for Panama and Colon showed an average of 32.93 per 1000. "The dreaded tropical diseases of the Isthmus," Gen. Abbot says, "have lost their terror." R. DEC. W.

INDIAN TYPES IN THE AMAZON BASIN.—Dr. Theodor Koch-Grünberg's publisher, Herr Ernst Wasmuth of Berlin, has sent to the Society Lieferung 2 of this ethnologist's "Indianertypen aus dem Amazonasgebiet." The notice of Lieferung 1 in the BULLETIN (1907, p. 296) indicates the characteristics of these beautiful photographic reproductions. Part 2 includes 22 folio plates on which are shown 28 individual pictures and one group of the Tuyuka tribe and 11 individual pictures of the Bara tribe. The individuals, men and women, are shown in full face and in profile, and the plates depict their physical characteristics, attire, ornaments, and tattooing, as far as they indulge in this vanity. These are contributions to our knowledge of hitherto unknown tribes of the headwaters of the Rio Negro, first visited by Dr. Koch-Grünberg. The two instalments of the ethnologist's photographs thus far published illustrate four of the nine tribes which he studied. The accompanying letterpress describes the physical characteristics of each type and its geographical environment.

PERUVIAN METEOROLOGY.—Meteorological observations from Peru are still so few in number, and so very limited as to the period of time which they cover, that the appearance of the third volume on *Peruvian Meteorology,* in the *Annals of the Astronomical Observatory of Harvard College* (Vol. XLIX, Pt. I, 1907), is an important event. This volume contains the results of meteorological observations made at the Arequipa station of the Harvard Observatory during the years 1892 to 1895, and was prepared for publication by Professor Solon I. Bailey, who established most of the Peruvian meteorological stations, and under whose direction most of the observations were made. The tables, which are published in full, include the usual data, and also a number of special observations, as *e. g.,* the hourly amount of cloud; evaporation; the movement of the atmosphere at different levels, etc. The diurnal and annual variations of the most important elements are shown graphically. R. DEC. W.

CLIMATIC CONTROL OF THE DISTRIBUTION OF POPULATION IN SOUTH AMERICA.—To the *Bulletin of the Geographical Society of Philadelphia* for July, 1907, Professor Mark S. W. Jefferson, of Michigan State Normal College, contributed a valuable paper on *The Distribution of People in South America.* The control of the larger geographic features is considered, and the importance of the climatic

factor stands out very clearly. The hot and moist Amazonian *hinterland* is naturally left to the aborigines, except for the few trading-posts. Caracas, Bogotá, Quito, Cuzco, Arequipa, Puno, La Paz, Sucre—all lie well above sea-level, in climates which have been praised by writer after writer as being characterized by a "perpetual spring." In the tropical Andes, although the lowlands are favourable for the cultivation of many valuable crops, man prefers the lower temperatures of the higher altitudes. In extra-tropical latitudes, the higher valleys are too cold; population is therefore most dense on the lowlands. The northern Chilean desert has a few large towns on the coast, owing to the presence of the nitrate. Southern Chile is too rainy. In the central portion of the republic is the densest population. These facts, and many others, are clearly set forth in this paper, which contains several maps. R. DEC. W.

ASIA.

WILHELM FILCHNER'S EXPLORATIONS.—This explorer in the present year will publish the results of his last two years' journey in northeastern Tibet and the neighbouring regions of China. Some of his map work, presented at the last meeting of the German Geographical Congress, was specially distinguished by the official commendation of that body of geographical workers. His maps are to be published in eight parts, and it is said that they will give some entirely new impressions of the physiography of the regions where Filchner laboured and which were in large part unknown.

His report on the lakes of northeastern Tibet and the Matshu River was read before the Berlin Geographical Society in December, and is published in the January number of the *Zeitschrift* with fine photographs of some of the lakes and their surroundings and of the Matshu valley. The explorer made a careful determination of the area of each of the twenty-one lakes in this part of the Tibetan plateau, and he presents a diagram showing their comparative size. Kuku Nor (5,500 square kilometers) is much larger than all the other lakes together.

EUROPE.

GEOGRAPHY IN GREAT BRITAIN.—*The Geographical Journal* (March, 1908) says that public men of Leeds are organizing "The Leeds and Yorkshire Geographical Society." A committee has under consideration the objects and constitution of the new body, which will include in its activities the arrangement of lectures, excursions and exhibitions, the publication of a journal, and the formation of a library. Lord Faber will probably be the first President.

MR. EDGAR ALLAN of Sheffield has founded a Lectureship in geography at the University in that city. The salary of the lecturer will be £300 a year.

AN ANNUAL GRANT of £200 towards the work of the Royal Scottish Geographical Society was sanctioned by the British Treasury in February.

GEOGRAPHY now forms a regular part of the curriculum in the universities of Oxford, Cambridge, London, Manchester, Liverpool, Birmingham, Sheffield, Aberystwith and Edinburgh, and there is reason to believe that other universities

will soon follow suit. There is thus considerable encouragement for really competent men to devote themselves to geography as a profession.

THE WINCHESTER NATIONAL PAGEANT, depicting scenes illustrating the making of England, will be held in the Historic Grounds of Wolvesey Castle, Winchester, June 25, 26, 27, 29, 30, July 1, from 3 to 6 P. M.

For information apply to The Secretary, Pageant Office, Winchester.

TIDES BETWEEN THE NORTH AND BALTIC SEAS.—The steamers engaged in the International Ocean Researches for Germany, Sweden, Denmark, and Finland, while studying the currents between the North and Baltic seas last year, arrived at some surprising conclusions. They found that the flood tide from the North Sea and the Atlantic enters and passes through the Kattegat to the Great Belt, as a wave, at least 20 meters beneath the surface and moving at the rate of 60 centimeters a second. The tidal movement is twelve hours in passing through the Kattegat to the Great Belt. When it enters the mouth of this sound it prevents the passage of water from the Baltic westward through this channel, till the ebb flow comes, when the pent-up waters of the Baltic rush westward at a speed of 80 to 90 centimeters a second until the next flood wave in the depth rolls in.

In some European rivers, as the Seine and Severn, the flood tide rushes up stream from the sea as a great wave (Bore). This flood tide beneath the surface in the Kattegat and the Great Belt is shown by the recent investigations to be a similar phenomenon, with this difference, that the tidal wave passes through the lower water strata and shows little effect at the surface. If it were not for the upper stratum of water in this region various ports, as Göteborg, would show the same results of the ebb and flow of the tide that are observed at Hamburg.

THE GENEVA GEOGRAPHICAL SOCIETY held a Special Meeting on the 27th of March to commemorate the Fiftieth Anniversary of its foundation.

POLAR.

MR. ARCTOWSKI NOT GOING TO THE ANTARCTIC.—Friends of Mr. H. Arctowski will regret to hear that he is unable at present to complete the organization of the second Belgian South Polar Expedition. The Belgian Government decided that it could not give the enterprise the financial backing which was expected, and the funds raised by private subscription were not sufficient to meet the cost. The programme of scientific work which Dr. Arctowski had prepared was widely approved.

VARIOUS.

PROFESSOR DAVIS GOING TO BERLIN.—Prof. William M. Davis, who since 1898 has held the Sturgis-Hooper Professorship of Geology at Harvard, has been selected by the German Government as the visiting professor from Harvard to the University of Berlin in 1908-09. His lectures at Berlin will probably be upon the geography of the United States. Professor Davis will spend the coming summer abroad, but will return to Harvard in October for the first half of the academic year before going to Berlin in March, 1909.

GEOGRAPHISCHES JAHRBUCH FOR 1907.—The volume (30) contains a systematic index to the contents of the annual for the last ten years (Vols. 21-30). This index and those published in Vols. 10 and 20 form a complete guide to these invaluable notices and summaries of geographical work, classified in the various departments of geography. Nearly half of the volume, 180 pp., is given to Prof. E. Rudolph's eighth report on "Die Fortschritte der Geophysik" (1899-1902). Although this report covers a period of only four years, the topic calls for the mention of 1,753 books, papers, etc. Dr. W. Gerbing presents a report of 40 pp. on "Die Fortschitte der Gewässerkunde des Festlandes" (subterranean, standing, and flowing waters) now presented in this annual for the first time. Dr. R. Langenbeck reports in 32 pp. on "Die Fortschritte in der Physik und Mechanik des Erdkörpers." The literature and maps of Africa (1904-6), with critical remarks by Prof. Dr. F. Hahn, of Australia and Polynesia (1904-6), also by Dr. Hahn, and of Latin America (1904-6) by Prof. Dr. W. Sievers are the sections devoted to regional geography. "Die Literatur zur Geschichte der Erdkunde vom Mittelalter an (1903-07)," is reported upon in 52 pp. by Dr. Walther Ruge. It is expected that other reports, intended for this volume, but delayed, will be published during the coming summer.

THE DEVELOPMENT OF THE EARTH AND ITS INHABITANTS.—The publishing house of K. G. Lutz, Stuttgart, has sent to the Society two of the seven fine lithographic sheets, each 42½ by 32 inches, on which Prof. Dr. E. Fraas endeavours to give a graphic representation of the geological development of the earth and of some of the characteristic forms of life in each of the geological eras, as revealed by the rock formations. In "Aeltere palæozoische Formation" (sheet 1), for example, we see at the top, in brilliant colours, an ideal palæozoic land- and waterscape. On land, in the sea, and on the sea floor are many types of the vegetable and animal life reproduced, perhaps as well as can be done, from the more or less clear indications which fossils reveal. These forms of life are numbered to correspond with numerals on the left margin where their scientific and German names are given; and also enlarged representations of some of the leading fossils.

More than half of the sheet is devoted to a diagrammatic representation in colours of the Cambrian, Silurian, and Devonian sediments of this era, rising from a base of plutonic rocks.

Of course, no attempt to make a landscape reproduction of a geological era can be very satisfactory, for much of it must be filled in by the imagination of the artist. At the same time, these pleasing pictures are already regarded in Germany, according to the reviews that have come to hand, as very carefully done and as helpful in the middle schools for which they are intended. Their study, in connection with the clearly written explanatory text which accompanies the sheets, is calculated to give some fundamental notions of geology and to stimulate interest in this science. The titles of the seven sheets are: (1) Aeltere paläozoische Formation; (2) Jungere paläozoische Formation; (3) Trias Formation; (4) Jura Formation; (5) Kreide Formation; (6) Tertiär Formation; (7) Diluvial Formation.

LOWER PRICES FOR GERMAN MAPS.—Baron von Richthofen wrote, not long before his death, that he never travelled in his native land without taking with him Carl Vogel's map of Germany. This is the most notable work of one of the

greatest German cartographers, a map in twenty-seven atlas sheets, reduced from the detailed topographic sheets of the Government. The work is a standard map of Germany, but its price, 50 marks or about $12, restricted its usefulness. The old price was high because the map was copper engraved, hand-coloured, and hand-printed. Several years ago, some of the leading atlas makers introduced processes by which they dispensed with copper engraving. Their completed map sheets, printed on fast presses, are as effective, as scientific, and more legible and pleasing to the eye than the old maps. By these means the price of the leading German atlases has been greatly reduced.

The same processes have now been applied to the Vogel map. The fact is worth mentioning, because first-rate maps are the most convenient and accurate repositories of geographical information, and anything that reduces their cost without impairing their value is a boon to the public.

HONOURS OF THE ROYAL GEOGRAPHICAL SOCIETY.—The two Royal Medals this year have been given to the Prince of Monaco and to Lieutenant Boyd Alexander, the Murchison Bequest to Colonel Delmé-Radcliffe, the Gill Memorial to Dr. T. G. Longstaff, and the Cuthbert Peek Fund to Roi Sahib Singh, a native Indian surveyor.

MOUNTAIN SICKNESS.—In a recent address before the Royal Scottish Geographical Society in Edinburgh, Mrs. Fanny Bullock Workman discussed the experiences of herself and of her party during *Exploration and Climbing in the Nun Kun Himalaya* (Scot. Geogr. Mag., Jan., 1908). Above 20,000 feet four of the party had headache and pain in the back, chest and limbs. Only one of the nine Europeans really suffered from mountain sickness. No one had hemorrhage of nose or ears. "Mountain lassitude" prevailed above 20,000 feet. The symptoms of loss of appetite and insomnia rather increased than diminished the longer the party remained very high, and therefore Mrs. Workman does not believe in acclimatization at or above 21,000 feet. Cold is also a very serious deterrent, especially when a person is not wholly "fit." All the party suffered from insomnia, and upon this fact especial stress is laid. A succession of sleepless nights weakens the human frame so that it must become weak and unfit for severe physical exertion. Therefore, Mrs. Workman believes that "when the highest peaks of 28,000 and 29,000 feet are seriously attacked, more will fail through sleeplessness and its effects than from any other cause." The inability to sleep is largely produced by the deficiency of oxygen, but insomnia is designated as "the real mother of altitude symptoms, and more to be dreaded on Everest than mere mountain sickness." R. DEC. W.

SCIENTIFIC EXPLORATION IN THE PACIFIC.—Mr. William A. Bryan read a paper before the American Association at the Chicago meeting on Dec. 30, in which he told of the organization in Honolulu of a society under the name of the Pacific Scientific Institution, to undertake researches in the Pacific Ocean and among its islands. Attention, he says, will be chiefly directed to ethnology, but geology, physiography, zoology and botany will also be investigated and efforts will be made to demonstrate the part that winds and ocean currents have taken in the distribution of animals, plants and the human race. A vessel is to be specially

equipped for the service of these expeditions, and it is thought that fifteen years may be needed for the work. Mr. Bryan is president of the organization and is said to be the chief mover in it.

The March number of the *American Journal of Science* contains a paper on the evolution of the elephant by Prof. R. S. Lull of Yale University, who uses the word elephant comprehensively to include all of the proboscidians. The paper is accompanied by four charts showing the distribution of this group from Miocene to recent times. Prof. Lull says the African species has a vertical distribution from sea level to a height of 13,000 feet in the Kilimanjaro region. Aridity is a most effective barrier because of its influence upon the food supply and because water is a prime necessity to the comfort of the animal. Thus the Sahara to-day marks the northernmost limit of the African species. Vegetation also constitutes an effective barrier to the proboscidians, especially in the case of the tropical jungle of Central America.

Dr. H. R. Mill has been elected a Corresponding Member of the Physical Geography Section of the Imperial Russian Geographical Society of St. Petersburg.

"L'Almanach du Congo, 1908," published at Ixelles-Bruxelles, Belgium, for the benefit of the Roman Catholic Mission des Falls, Congo Free State, contains much information about the distribution, the activities, and the statistics of the Catholic missions in that State. The large number of children in their schools, the widely extended hospital and dispensary services and the many centres where trades are taught to the young of both sexes, are among the impressive facts in this compilation.

The "Index of Economic Material in Documents of the States of the United States" is now being prepared and published for the Department of Economics and Sociology of the Carnegie Institution. The compilation is in charge of Miss Adelaide R. Hasse, librarian of the Department of Public Documents in the New York Public Library. The volumes for Maine, New Hampshire, Vermont and New York have appeared, those for Massachusetts and Rhode Island are in press and a volume will be devoted to each State of the Union. Students of American economic conditions may thus be assisted to trace the development of any economic subject in the individual States or in the whole country so far as it is reflected in the public documents here indexed.

Prof. W. M. Davis of Harvard University and Prof. A. P. Brigham of Colgate University will lecture on "The Geography of North America" in the School of Geography, which will meet in Oxford University from Aug. 10 to Aug. 28.

Mr. Frank Leverett, of the U. S. Geological Survey, is now in Europe making a comparative study of glacial formations there in connection with the similar investigations in the United States. His observations will embrace the deposits in and around the Alps, in the Scandinavian ice field, and also those in Germany, Russia and Great Britain.

Prof. J. J. Thomson has accepted the invitation of the Council of the British Association to be President of the Association for the meeting to be held next year in Winnipeg.

THE AMERICAN GEOGRAPHICAL SOCIETY.—A Regular Meeting of the Society was held at Mendelssohn Hall, No. 119 West Fortieth Street, on Tuesday, March 24, 1908, at 8.30 o'clock, P. M.

Mr. A. A. Raven in the chair.

The following persons, recommended by the Council, were elected to Fellowship:

Robert Asinari de San Marzano.	Arthur Walbridge North.
Miss Lizzie Van Boskerck.	Arthur Lyman Fisk.

The Chairman then introduced Dr. Roland Dwight Grant, who addressed the Society on the Yellowstone Region, Scenic and Scientific.

Stereopticon views were shown.

On motion, the Society adjourned.

The Council of the Society has unanimously awarded the Cullum Geographical Medal to Prof. William Morris Davis, of Harvard University.

OBITUARY.

ALBERT LANCASTER.—Mr. Lancaster, Chief of the Meteorological Service at the Royal Observatory, Belgium, is dead at the age of 59 years. He was widely known for his published works and especially for the monumental "Bibliographie Générale de l'Astronomie," three volumes of 900 to 1,300 pages each, which he prepared in collaboration with Mr. J. C. Houzeau. In 1880 he founded the periodical *Ciel et Terre,* and the articles he wrote for it would fill several large volumes.

DR. A. W. HOWITT.—Dr. Howitt, author of "The Native Tribes of Southeast Australia" and other important anthropological works, died in Australia on March 8, aged 77 years.

NEW MAPS.

AFRICA.

ALGERIAN SAHARA.—Croquis des Oasis de l'Oued Rir. Scale, 1:100,000, or 1.5 statute mile to an inch. Illustrates "Exposé de la Situation Générale des Territoires du Sud de l'Algérie," by M. C. Jonnart, Governor General, Algiers, 1907.

This black-and-white sketch map distinguishes those oases of the Wadi Rir in which artesian wells were sunk in 1906-1907.

GOLD COAST.—Scale, 1:125,000, or 1.9 statute mile to an inch. Sheets, 72-L-I (Abetife), 73-M-I (Prampram) and sheet 72-Q-III (Tarkwa). Published under